

September 18,1992

TECHNICAL DATA: COMPUTALKER SPEECH SYNTHESIZER (CSSB) Version 2

DESCRIPTION: THE CSSB VERSION 2 IS CAPABLE OF TEXT TO SPEECH CONVERSION AS WELL AS DIRECT ALLOPHONE VOICE SYNTHESIS. IN THE TEXT TO SPEECH MODE, ENGLISH TEXT IS CONVERTED TO SYNTHESIZED SPEECH. IN THE ALLOPHONE MODE THE USER MUST MAKE UP THE WORDS FROM THE 64 ALLOPHONES CONTAINED IN THE SYNTHESIZER CHIP.

THE BOARD IS DESIGNED TO BE MOUNTED INSIDE A PC/XT TYPE COMPUTER AND CONNECTED TO THE COMPUTER'S RS232 SERIAL PORT WITH AN EXTERNAL CABLE. THE SERIAL INPUT PORT OF THE CSSB IS CONFIGURED AS A MODEM INTERFACE TO ALLOW EASY CONNECTION TO THE COMPUTERS SERIAL PORT.

THE BOARD IS SHIPPED FROM THE FACTORY WITH THE SERIAL PORT CONFIGURED AS FOLLOWS:

S1-OFF - NC
S2-OFF - Not used
S3-OFF - PHONEME MODE OFF
S4-OFF - SPEAK SIGN ON MESSAGE ON RESET
S5-ON,S6-OFF 2400 BAUD THE CHARACTER FORMAT IS FIXED
AT 7 BITS,2 STOP BITS,NO PARITY

THESE PARAMETERS WILL WORK WITH THE DEFAULT COM PORT PARAMETERS ON THE PC'S AND COMPATIBLES.

THE RS232 CONNECTOR PIN CONFIGURATION IS:

PIN #	DESCRIPTION
1	GROUND.
2	SERIAL DATA INPUT TO THE CSSB.
3	NOT USED.
4	REQUEST TO SEND (RTS) CSSB RESET CONTROL. -9 VOLTS (OFF) HOLDS THE CSSB IN RESET. NO SPEECH. +9 VOLTS (ON) RESET OFF. THE CSSB CAN SPEAK. CAN BE DEFEATED BY CUTTING JUMPER 'JA'.
5	CTS 4.7K PULLUP FOR PC COMPATIBILITY.
6	DATA SET READY (DSR) BUFFER FULL HAND SHAKE. -9 VOLTS (OFF) IS BUFFER FULL NO CHARACTERS ACCEPTED. +9 VOLTS (ON) BUFFER IS READY TO ACCEPT CHARACTERS. CAN BE DEFEATED BY CUTTING JUMPER 'JB'.
7	GROUND RETURN.
8	CARRIER DETECT (DCD) 4.7K PULL UP FOR PC COMPATIBILITY.

*****WARNING***** WARNING *****WARNING*****

THE DB25S INTERFACE CONNECTOR ON THE COMPUTALKER IS THE SAME TYPE OF CONNECTOR AS IS USED ON THE PARALLEL PRINTER PORT ON PC'S AND PC CLONES.

*****WARNING***** WARNING *****WARNING*****

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THE SIX POSITION SELECTOR SWITCH FUNCTIONS:

SW #	COND	DESCRIPTION
1	NC	
2	NOT USED	
3	OFF	PHONEME SPEECH OFF
	ON	PHONEME SPEECH ENABLED
4	OFF	CSSB SPEAKS SIGN ON MESSAGE ON RESET
	ON	CSSB DOES NOT SPEAK SIGNON MESSAGE ON RESET
SW5	SW6	BAUD RATE
ON	ON	1200
* ON	OFF	2400 DEFAULT PC/XT DATA RATE
OFF	ON	4800
OFF	OFF	9600

THE CHARACTER FORMAT IS FIXED AT 7 DATA BITS, 2 STOP BITS, NO PARITY

* DENOTES FACTORY SETTING

NOTES ON OPERATING THE CSSB:

1. WHEN THE POWER IS APPLIED AND THE RTS INPUT TO THE CSSB IS SET HIGH THE CSSB WILL RESPOND WITH A SIGN ON MESSAGE.
 IN THE TEXT TO SPEECH MODE THE SIGN ON MESSAGE IS 'OK'.
 IN THE ALLOPHONE MODE THE SIGN ON MESSAGE IS 'READY'.
 TO SUPPRESS THE SIGN ON MESSAGE AFTER INITIAL TURN ON OR RESET TURN ON SW4.

2. IF YOU PLAN TO USE THE CSSB WITH PROGRAMS WRITTEN IN PC/XT BASIC SUPPLIED WITH THE DISK OPERATING SYSTEM, WRITE THE PROGRAM IN SUCH A WAY THAT THE BUFFER IS NEVER FILLED. SHOULD THE BUFFER BE FILLED, INTERNAL TIMERS IN BASIC WILL TIME OUT AND HALT THE PROGRAM INDICATING
 "DEVICE TIMEOUT IN <LINE #>"
 THE BUFFER WILL HOLD 1792 BYTES. THIS ERROR CAN BE HANDLED WITH THE
 "ON ERROR GOTO" BASIC COMMAND.

3. YOU CAN STOP THE SPEECH IMMEDIATELY TWO WAYS:
 A. TURN OFF RTS PIN 4 TO THE CSSB RS232 PORT. (-3VOLTS OR LESS)
 B. IF THE BUFFER IS NOT FULL, SEND ESCAPE (CHR\$(27))
 TO THE CSSB.

WITH EITHER METHOD THE BUFFER WILL BE ERASED.

4. AN EXTERNAL SPEAKER CAN BE CONNECTED TO THE RCA PHONO JACK ON THE TOP OF THE CONNECTOR PANEL ON THE BACK OF THE CSSB.

5. A STANDARD DB25M TO DB25S RS232 CABLE CAN BE USED TO CONNECT THE CSSB TO THE COMPUTER RS232 PORT. PINS 1 THROUGH 8 ARE USED. THERE IS NO CONNECTION TO ANY OTHERS. THE CABLE SHOULD BE WIRED IN A 1 TO 1 CONFIGURATION. NO CROSS CONNECTIONS ARE REQUIRED; PROVIDED THE COMPUTER RS232 PORT IS A STANDARD TERMINAL OUTPUT CONFIGURATION (PC/XT FACTORY CONFIGURATION).

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6. ALTHOUGH THE BOARD IS LAYED OUT TO FIT INSIDE A PC TYPE COMPUTER, IT CAN BE USED WITH ANY COMPUTER HAVING AN RS232 PORT AVAILABLE. ONLY POWER IS TAKEN FROM THE PC/XT I/O BUSS. IT WILL BE NECESSARY TO SUPPLY POWER TO THE BOARD THROUGH THE EDGE CONNECTOR. SEE ITEM 10 BELOW FOR DETAILS ON THE CSSB POWER SUPPLY.

7. YOU CAN MAKE THE COMPUTALKER SPELL OUT INSTEAD OF PRONOUNCE WORDS BY PUTTING A <SPACE> BETWEEN EACH CHARACTER IN THE WORD.

8. THE CSSB WILL ONLY SPEAK NUMBERS 0,1,2,3,4,5,6,7,8,9 INDIVIDUALLY. IF YOU WANT THE CSSB TO SPEAK "104" AS "ONE HUNDRED AND FOUR" INSTEAD OF "ONE ZERO FOUR" YOU WILL HAVE TO WRITE A PROGRAM TO IMPLEMENT THE OPERATION.

9. THE CSSB HAS A HEAVY ACCENT. PUTTING SPACES BETWEEN WORDS SLOWS THE SPEECH DOWN. SPELLING WORDS 'PHONETICALLY' INSTEAD OF 'CORRECTLY' WILL IMPROVE THE SPEECH QUALITY CONSIDERABLY.

10. ALL POWER CONNECTIONS ARE MADE TO THE CIRCUIT SIDE OF THE EDGE CONNECTOR. PIN B01 IS THE END OF THE CONNECTOR NEAREST THE RS232 CONNECTOR. THE CONNECTIONS ARE:

PIN #	FUNCTION
B01	GROUND NEAREST THE RS232 CONNECTOR
B10	GROUND
B31	GROUND FURTHEREST AWAY FROM THE RS232 CONNECTOR
B03	+5 VOLTS
B29	+5 VOLTS
B07	-12 VOLTS
B09	+12 VOLTS

A SPECIAL POWER SUPPLY IS AVAILABLE FROM BG MICRO AS AN OPTIONAL EXTRA. CONTACT BG MICRO FOR DETAILS.

11. THE SPEECH PITCH, IE MALE VS FEMALE, IS FIXED AND CANNOT BE CHANGED.

RUNNING THE WORDLIST SPEECH DEVELOPMENT PROGRAM SUPPLIED WITH THE CSSB.

WORDLIST IS SUPPLIED IN TWO FORMS:

1. WORDLIST.EXE A COMPILED BASIC VERSION OF THE PROGRAM. THIS PROGRAM IS SUPPLIED TO ALLOW ANYONE TO OPERATE THE CSSB THAT HAS A PC/XT TYPE SYSTEM WITHOUT HAVING TO DEPEND ON HAVING PC/XT BASIC AVAILABLE.
2. WORDLIST.BAS IS THE BASIC SOURCE FILE FOR THE PROGRAM. ANY USER WITH BASIC CAN MODIFY THE PROGRAM OR USE THE PROGRAM AS AN EXAMPLE OF HOW TO INTERFACE THEIR PROGRAMS TO THE CSSB.

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WORDLIST ALLOWS THE USER TO DEVELOP WORDS AND PHRASES AND STORE THEM FOR FUTURE REFERENCE. IT IS HEAVILY MENU DRIVEN. ITS USE SHOULD BE EASILY UNDERSTOOD BY FOLLOWING THE MENU.

INSTALL THE CSSB AN AVAILABLE SLOT IN YOUR PC. CONNECT AN RS232 CABLE (DESCRIBED ELSEWHERE) BETWEEN YOUR COM PORT AND THE CSSB.

TO RUN THE 'WORDLIST' PROGRAM:

1. SET THE CSSB FOR 2400 BAUD.
2. BOOT YOUR SYSTEM ON MSDOS VERSION 2.1 OR LATER.
3. WHEN YOU GET THE 'A>' PROMPT, REMOVE THE SYSTEM DISK AND INSERT THE DISK SUPPLIED WITH THE CSSB IN DRIVE A.
4. FROM THE 'A>' PROMPT ENTER: A> WORDLIST<ENTER>
 <ENTER> MEANS DEPRESS THE 'ENTER' KEY.

THE PROGRAM WILL BEGIN EXECUTION AND FURTHER INSTRUCTIONS WILL BE GIVEN ON THE SCREEN.

THE FIRST QUESTION THE PROGRAM WILL ASK YOU IS TO SPECIFY THE COM PORT TO BE USED WITH THE CSSB. IF YOU DO NOT KNOW, TRY '1' FIRST. IF THAT DOESN'T WORK TRY '2'. NO DAMAGE WILL OCCUR IF YOU ARE WRONG THE FIRST TIME.

BG MICRO CANNOT ANSWER QUESTIONS ABOUT MODIFYING THE WORDLIST PROGRAM OR HELP WITH ANY PROBLEMS YOU MAY HAVE IN MAKING PROGRAMS YOU WRITE WORK UNLESS THE QUESTION INVOLVES THE OPERATION OF THE BOARD ITSELF. IN OTHER WORDS B.G. MICRO CANNOT DEBUG YOUR PROGRAMS FOR YOU.

BG MICRO CAN DEVELOP SPECIAL APPLICATION PROGRAMS FOR USERS ON SPECIAL ORDER. CONTACT BG MICRO FOR DETAILS AND A COST ESTIMATE. ALLOW 2 WEEKS FOR RESPONSE.

FOR MORE INFORMATION ON THE ALLOPHONE MODE, CONTACT B.G. MICRO AND ASK FOR THE ALLOPHONE DATA PACKET. THE COST IS \$10.00.

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